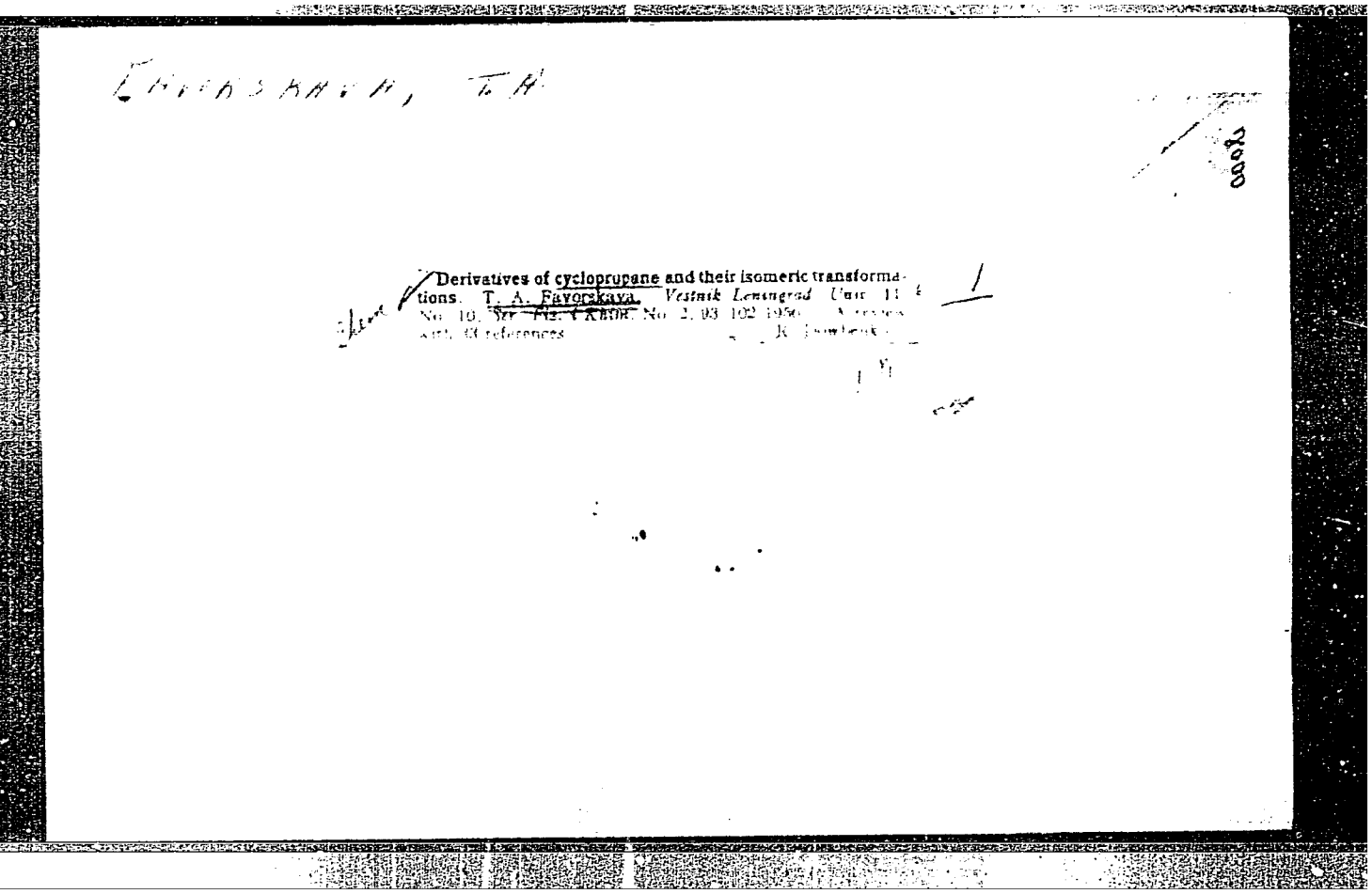
[redacted] T. A.
FAYORSKAYA,

CH

Mechanism of dehydration of γ-glycols. I. Dehydration of 2-methyl-2,5-pentanediol and 2-phenyl-2,5-pentanediol. T. A. Favorskaya and O. V. Sergievskaya (State Univ., Leningrad). *Zhur. Obshchei Khim.* 25, 1509–13 (1955); cf. *C.A.* 48, 13638*b*.—3-Acetylpropyl alc. and MeMgBr gave 20% *2-methyl-2,5-pentanediol* (I), b_{11} 124–5°, n_D^{20} 1.4501 d_{20} 0.9743, and a little 2,2-dimethyltetrahydrofuran, along with *2-methyl-2-penten-5-ol*, b_{11} 59–60°, d_{20} 0.8571, n_D^{20} 1.4440. I in dil. H_2SO_4 (pH 1.6) on distn. gave the above alc. and furan deriv.; distn. in the presence of traces of H_2SO_4 gave only the latter. 3-Acetylpropyl alc. and PhMgBr gave 40–50% *2-phenyl-2,5-pentanediol*, b_3 102–3°, d_{20} 1.0791, n_D^{20} 1.5340. This refluxed with dil. H_2SO_4 (pH 1.6) 6 hrs. gave 38% *2,2-methylphenyltetrahydrofuran*, b_{11} 107°, d_{20} 1.0044, n_D^{20} 1.5178; distn. of the glycol from 0.1*N* H_3PO_4 gave 58% furan deriv., while HCO_2H (pH 2.4) gave 50%, and acetate buffer (pH 3.7) gave 9% with residual unreacted glycol. Acetylcyclopropane and PhMgBr gave 60–75% *methylphenylcyclopropylcarbinol*, b_3 105–7°, d_{20} 1.0380, n_D^{20} 1.5370; this refluxed with 1:1 HCO_2H 1.5 hrs. gave 19% *1-phenyl-1-cyclopropylethylene*, 50% *2-phenyl-2-penten-5-ol*, b_3 134–7°, d_{20} 1.0179, n_D^{20} 1.5590, and its formate from which it was freed by refluxing with 20% K_2CO_3; the alc. does not form a furan deriv. on heating with HCO_2H readily, but does so with H_2SO_4. O. M. Kosolapoff

(1)



Derivatives of cyclopropane and their isomeric transformations. T. A. Favorskaya. *Vestnik Leningrad Univ.* 11 [illegible] No. 10, Ser. Fiz. i Khim. No. 2, 93-102 1956. [illegible] with 40 references

- Favorskaya, T. A.

USSR/Organic Chemistry - Theoretical and General Questions on Organic Chemistry E-1

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4239

Author : Favorskaya, T.A., Ryzhova, N.P.
Title : Mechanism of Dehydration of Gamma-glycols. II. Study of Dehydration of 2,5-Dimethylhexandiol-2,5, 4-Methylhexandiol-1, 4 and 4-Methyloctanediol-1,4.

Orig Pub : Zh. obshch. khimii, 1956, 26, No 2, 425-426

Abstract : Similarly to other primary-tertiary gamma-glycols containing fatty radicals (see Communication I, RZhKhim, 1956, 19133) 4-methylhexanediol-1,4 (I) and 4-methyloctanediol-1,4 (II) are dehydrated according to the same mechanism as the di-tertiary 2,5-dimethylhexanediol-2,5 (III), by forming on distillation with H_2SO_4 (pH 1.6) first beta-unsaturated alcohols which are then isomerized to derivatives of tetrahydrofurane. From I was obtained 4-methylhexene-3-ol-1 (IV), yield 15%, BP 75.5-76°/12 mm,

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Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4239

$n^{20}D$ 1.4495, d_4^{20} 0.8617, and 2,2-dimethyltetrahydrofurane (V), yield 17%, BP 121-122°, $n^{20}D$ 1.4196, d_4^{20} 0.8553. On distillation with one drop of H_2SO_4 IV is isomerized to V, yield 65%. From II there has been obtained by this procedure 4-methyloctene-3-ol-1 (VI), yield 24.58%, BP 99.5-100°/17 mm, $n^{20}D$ 1.4524, d_4^{20} 0.8524, and 2-methyl-2-n-butyltetrahydrofurane (VII) yield 32.5%, BP 55-56°/10 mm, $n^{20}D$ 1.4300, d_4^{20} 0.8507. On distillation with H_2SO_4 VI is converted to VII. From III was obtained 2,5-dimethylhexene-4-ol-2 (VIII), yield 42%, BP 63.5-64°/15 mm, $n^{20}D$ 1.4438, d_4^{20} 0.8489. VIII is isomerized by action of concentrated H_2SO_4 to 2,2,5,5-tetramethyltetrahydrofurane, yield 44%, BP 115.5-116.5°, $n^{20}D$ 1.4014, d_4^{20} 0.8089.

AUTHORS: Favorskaya, T. A. and Pavlova, L. A.

TITLE: Study of Conversions of Beta-Glycols of the Acetylene Series. Part 1. Synthesis and Conversion of 2,4-dimethyl-6-phenylhexine-5-diol-2,4 (Izucheniye prevrashcheniy Beta-glikoley atsetilenovogo ryada. I. Sintez i prevrashcheniya 2,4-dimetil-6-fenilgeksin-5-diola-2,4)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp. 52-57 (U.S.S.R.)

ABSTRACT: The study of beta-glycols of the acetylene series began with the most accessible 2,4-dimethyl-6-phenylhexine-5-fiol-2,4 synthesized according to the Iotsich method from diacetone alcohol and phenylacetylene. The glycol was subjected to effects of sulfuric acid of various concentrations and heated for 1-2 hrs to 70-100°. When diluted sulfuric acid was used, a greater part of the glycol was recovered without any changes and the reaction products included only small amounts of acetone and isopropenylphenylacetylene. The acetone was determined by the 2,4-dinitrophenyl hydrazone. Isopropenylphenylacetylene was first obtained by Skosarevskiy (4) during dehydration of dimethyphenylacetylenyl-carbinol. The formation of this hydrocarbon is also mentioned by A. I. Zakharova and Z. I. Sergeyeva (5) during the derivation of chlorohydrin of

dimethyl-phenylacetylenyl-carbinol. The constants of the hydrocarbon obtained by the authors of this report were in conformity with literature constants.

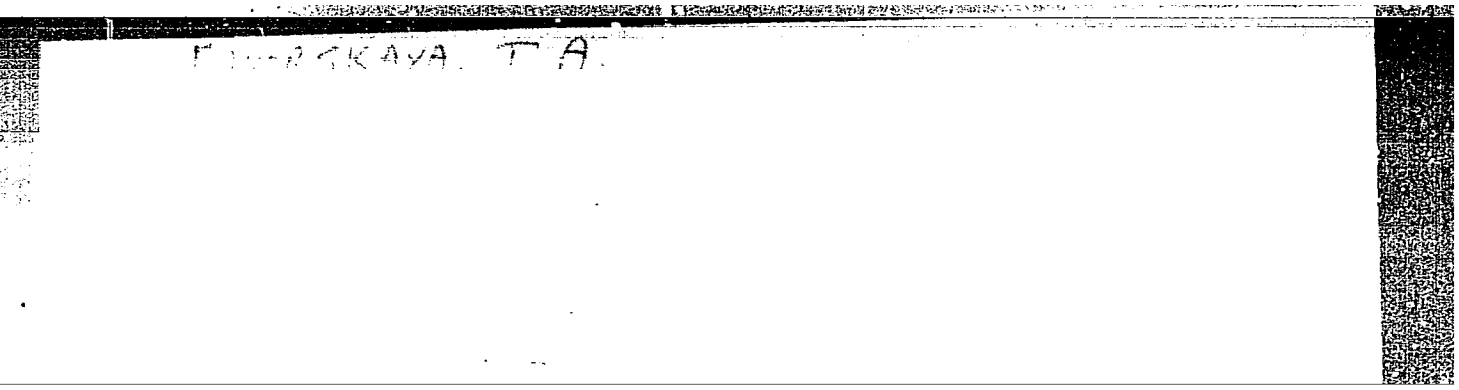
The curve clearly shows the absorption intensity maximum characteristic for the acetylene bond (4.48μ) and for the isopropenyl group (valent frequency 3.25μ, deformation frequency 11μ); the curve is similar to the absorption curve in the infrared zone for phenylacetylene and vinylacetylene. It was found that an increase in acid concentration, temperature and heating time is followed by an increase in the amount of acetone and isopropenylphenylacetylene in the reaction products. In experiments with a 4% alcohol solution of sulfuric acid, the authors also obtained a high boiling fraction which gave qualitative reactions with hydroxyl, ethoxyl, double bond, revealed no carbonyl groups and its composition and molecular weight were close to glycol.

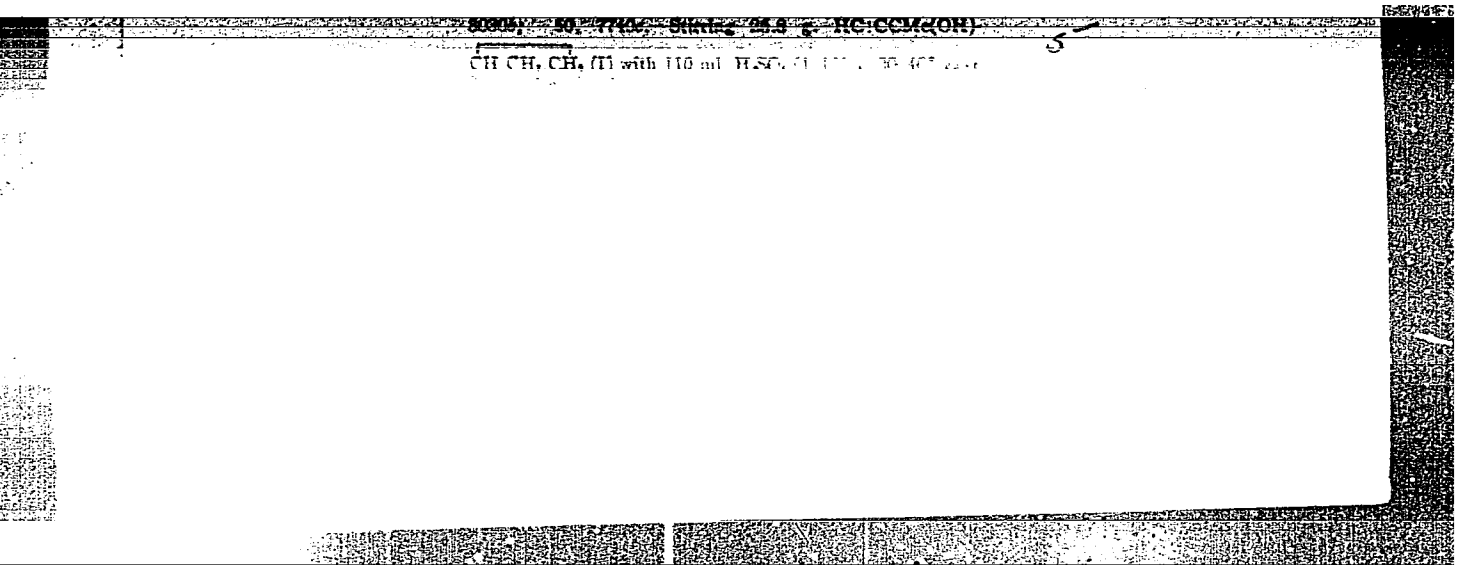
One graph. There are 11 references, of which 9 are Slavic.

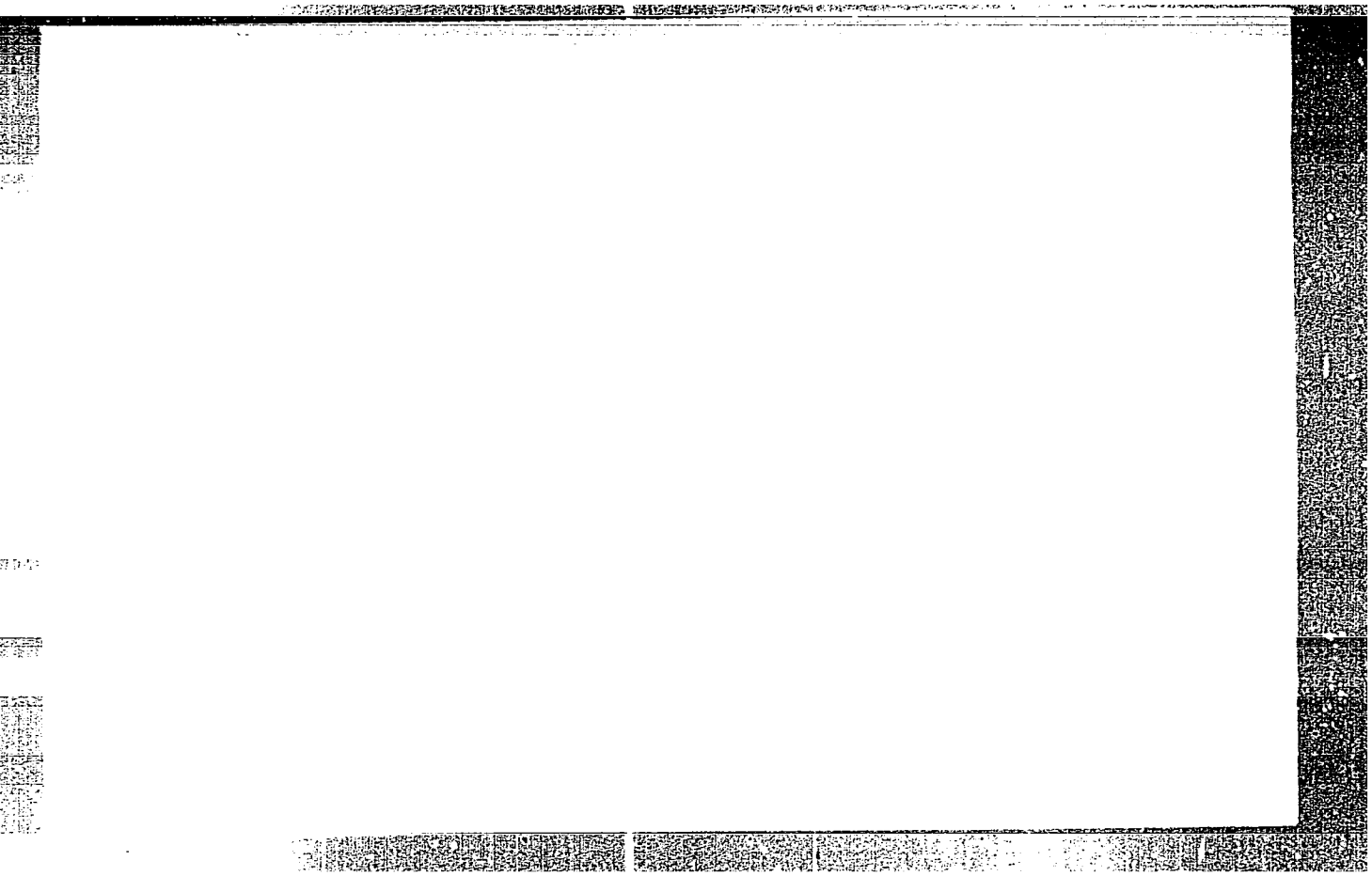
FAVORSKAYA, T.A.; SERGIYEVSKAYA, O.V.; RYZHOVA, N.P.

Mechanism of γ-glycol dehydration. Part 3: Study of the dehydration of 2-cyclohexylpentanediol-2,5 and pentanediol-1,4. Zhur. ob. khim. 27 no.4:937-942 Ap '57. (MLRA 10:8)

1. Leningradskiy gosudarstvennyy universitet.
(Pentanediol)







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PAVLORSKAYA, T.A.; [illegible], L.S.

Dehydration mechanism of γ-glycols. Part 4: Synthesis of 2-trichloromethylpentanediol-2,5 and the study of its reaction with sulfuric acid. Zhur.ob.khim. 27 no.6:1507-1509 Je '57. (MLRA 10:8)

1.Leningradskiy gosudarstvennyy universitet.
(Pentanediol) (Glycols)

FAVORSKAYA, T. A.

79-1-19/63

AUTHORS: Favorskaya, T. A. , Sergiyevskaya, O. V.

TITLE: On the Dehydration Mechanism of γ-Glycols (O mekhanizme degidratatsii γ-glikoley) V. An Investigation of the Properties and Conversions of Acetylene-γ-Glycol-3-Methylhexine-1--Diole-3,6 (V. Izucheniye svoystv i prevrashcheniy atsetilenovogo γ-glikolya-3-metilgeksin-1-diola-3,6)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 1, pp. 87-94(USSR)

ABSTRACT: The authors synthesized: acetylene-γ-glycol-3-methylhexine-1-diole-3,6 and its primary monomethylether -3-methyl-6-methoxy-hexine-1-ol-3. Under ordinary conditions the two compounds do not react with the ammonium solution of silver oxide. It is only by boiling that they form light yellow precipitations of silver derivatives which are difficult to dissolve in nitric acid and which explode in a dry state. The results of the chemical methods of investigation: The hydration, ozonization, as well as the spectra of the combined light of dispersion indicate the presence of a triple bond in the two

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79-1-19/63

On the Dehydration Mechanism of γ-Glycols . V. An Investigation of the Properties and Conversions of Acetylene-γ-Glycol-3-Methylhexine-1-Diole-3,6

compounds. The hydration of 3-methylhexine-1-diole-3,6 and of its ether was investigated. The synthesized carbonyl products neither react with semicarbazide nor with 2,4-dinitrophenylhydrazine; the presence of the carbonyl group in them was determined by their absorption spectra in the ultraviolet part. During standing of the ketoglycol obtained by hydration of 3-methyl-hexine-1-diole-3,6 with 2,4-dinitrophenylhydrazine dissolved in sulfuric acid a precipitation of 2,4-dinitrophenylhydrazone was formed which corresponded to the derivative of the unsaturated ketcalcohol, the product of dehydration of the ketoglycol. It was shown that the dehydration of the ketoglycol under the influence of the sulfuric-acid solution of the same composition does not take place without 2,4-dinitrophenylhydrazine. The synthesis of the methyl ether of acetopropyl alcohol is new. There are 12 references, 10 of which are Slavic.

Card 2/3

79-1-19/63

On the Dehydration Mechanism of γ-Glycols. V. An Investigation of the Properties and Conversions of Acetylene-γ-Glycol-3-Methylhexine-1-Diole-3,6

ASSOCIATION: Leningrad State University
(Leningradskiy gosudarstvennyy universitet)

SUBMITTED: December 30, 1956

AVAILABLE: Library of Congress

Card 3/3 1. Chemistry 2. Dehydration

AUTHORS: Favorskaya, T. A., Sergiyevskaya, O. V. SOV/79-28-12-15/41

TITLE: On the Dehydration Mechanism of γ-Glycols (O mekhanizme degidratatsii γ-glikoley) VI. Investigation of the Dehydration of 3-Methyl Hexyne-1-Diol-3,6 (VI. Izucheniye degidratatsii 3-metilgeksin-1-diola-3,6)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 12, pp 3232-3238 (USSR)

ABSTRACT: To obtain furan (I), an analog of the antibiotic (II) (Ref 7) the authors synthesized acetylene-γ-glycol, 3-methyl hexyn--1-diol-3,6 (Ref 4) (III), and carried out its dehydration to obtain 2,2-methyl-acetylenyl-tetrahydrofuran (IV). It turned out that the dehydration of 3-methyl hexyn-1-diol --3,6 takes place in two directions: under the formation of 2,2-methyl-acetylenyl-tetrahydrofuran, and of the alcohol 3-methyl hexene-3-in-1-ol-6, which under the present reaction conditions is polymerized for the most part. It was shown that this oenin alcohol is not isomerized to the 2,2-methyl--acetylenyl-tetrahydrofuran, and that on the action of sodium deep structural changes occur on this alcohol, so that it is impossible to synthesize the 2,2-methyl-benzyl-acetylenyl-

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On the Dehydration Mechanism of γ-Glycols. SOV/79-28-12-15/41
VI. Investigation of the Dehydration of 3-Methyl Hexyne-1-Diol-3,6

tetrahydrofuran starting from 2,2-methyl-acetylenyl-tetrahydrofuran. It was found that in the reaction of dimethyl-acetylenyl carbinol with sodium and halogen derivatives (ethyl and benzyl bromide) in liquid ammonia medium the formation of the corresponding ethers of dimethyl-acetylenyl carbinol takes place. The numerous dehydration experiments of glycol (III) offered only small yields due to the formation of cenin alcohol (V) which in acid medium is easily polymerized and resinified (Scheme 2). There are 13 references, 9 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: June 29, 1957

Card 2/2

5 (3)

AUTHORS: Favorskaya, T. A., Portnyagin, Yu. M., SOV/79-29-8-14/81
Hsü Ting-yu

TITLE: Investigation of the Transformation of the β-Glycols of the Acetylene Series. II. Investigation of Transformations of 3,5-Dimethylhexine-1-diol-3,5 and 4,6-Dimethylheptine-2-diol-4,6

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2522 - 2531 (USSR)

ABSTRACT: The authors were faced with the problem whether the dehydration of a β-glycol under formation of an unstable enin alcohol, previously carried out by T. A. Favorskaya and L. A. Pavlova (Ref 1), is of a general character. Therefore, the transformations of glycols (I), (II), and (III) were investigated with respect to the dehydration (Ref 1) mentioned above. In the reaction of compound (I) with diluted hydrochloric and sulphuric acid dehydration results under formation of enin alcohol 3,5-dimethylhexen-3-in-1-ol-5. In the reaction of compound (I) and (II) with sodium and ethyl bromide in liquid ammonia the monoethyl ethers of the glycols, 3,5-dimethyl-3-ethoxyhexin-1-ol-5 and 4,6-dimethyl-4-ethoxyheptin-2-ol-6, result, the hydroxyl

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adjacent to the triple bond reacting. The first ether yields no precipitate with silver oxide dissolved in ammonia even on heating, in contrast to glycol itself (precipitate of acetylenide). In the reaction of (I) with sulphuric acid in the presence of mercury oxide two products of hydration and dehydration are formed. In the reaction of compound (I) with concentrated hydrochloric acid the dichloride of an allen structure forms, which is proved by its infrared spectrum. In the dehydration of saturated glycol (III) with diluted hydrochloric acid the alcohol 2,4-dimethylhexen-2-ol forms, in the partial cleavage of which methyl-ethyl ketene is separated. In the reaction of compound (II) with diluted sulphuric acid no enin alcohol results, as it decomposes completely into acetone and methyl isopropenyl acetylene. Besides, the simultaneous hydration and dehydration leads to a keto alcohol. There are 9 references, 6 of which are Soviet.

Investigation of the Transformation of the β-Glycols of the Acetylene Series. II. Investigation of Transformations of 3,5-Dimethylhexine-1-diol-3,5 and 4,6-Dimethylheptine-2-diol-4,6 SOV/79-29-8-14/81

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: July 16, 1958

Card 3/3

SOV/79-29-9-18/76

5(3)

AUTHORS: Favorskaya, T. A., Kononova, K. A., Titov, M. I.

TITLE: On the Transformation Mechanism of Tertiary Alcohols of the Cyclopropane Series Under the Influence of Mineral and Organic Acids. VII. Methyl Cyclopropyl Phenylacetylenyl Carbinol and Methyl Cyclopropyl Acetyl Carbinol and Their Stability in Acid Medium

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2894-2899 (USSR)

ABSTRACT: It was of interest to find out how methyl cyclopropyl phenyl acetylenyl carbinol, a cyclic alcohol with substituted acetylene hydrogen, reacts with sulphuric and hydrochloric acid. A related problem was the hydration of methyl cyclopropyl acetylenyl carbinol and the properties of the methyl cyclopropyl acetyl carbinol resulting in this connection. Methyl cyclopropyl phenyl acetylenyl carbinol (I) was synthesized and identified according to A. Ye. Favorskiy (Ref 7) from phenyl acetylene and acetyl trimethylene in the presence of caustic potash and over the organomagnesium compound. When heated with hydrochloric acid (1:10), methyl cyclopropyl phenyl acetylenyl carbinol (I) was found to be yielded back unchanged from the reaction. On reaction with diluted hydrochloric acid (1:1), methyl cyclo-

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SOV/79-29-9-18/76

On the Transformation Mechanism of Tertiary Alcohols of the Cyclopropane Series Under the Influence of Mineral and Organic Acids. VII. Methyl Cyclopropyl Phenylacetylenyl Carbinol and Methyl Cyclopropyl Acetyl Carbinol and Their Stability in Acid Medium

propyl phenylacetylenyl carbinol forms a cyclic chloride, methyl cyclopropyl phenylacetylenyl chloro methane (II) (Scheme 1). The authors investigated the hydration of methyl cyclopropyl acetylenyl carbinol (IV), and found the resulting methyl cyclopropyl acetyl carbinol (V) to be stable in acid medium at room temperature. The investigation further revealed that, when distilling the hydration products of methyl cyclopropyl acetylenyl carbinol with steam, the result is an isomerization of methyl cyclopropyl acetyl carbinol in the unsaturated ketoalcohol 3-methyl hexen-3-on-2-ol-6 (VI) (Scheme 2) with subsequent cleavage, under the formation of acetyl trimethylene. The structure of compound (VI) was confirmed by spectroscopic analysis. There are 10 references, 8 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

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SOV/79-29-9-18/76

On the Transformation Mechanism of Tertiary Alcohols of the Cyclopropane Series Under the Influence of Mineral and Organic Acids. VII. Methyl Cyclopropyl Phenylacetylenyl Carbinol and Methyl Cyclopropyl Acetyl Carbinol and Their Stability in Acid Medium

SUBMITTED: September 8, 1958

Card 3/3

FAVORSKAYA, T.A., otv.red.; PIASTRO, V.D., red.; VODOLAGINA, S.D., tekhn.red.

[Some aspects of the theory of the structure of organic compounds] Voprosy teorii stroeniia organicheskikh soedinenii. Leningrad, Izd-vo Leningr.univ., 1960. 239 p. (MIRA 13:7)

1. Leningrad. Universitet.
(Organic compounds) (Chemistry, Physical and theoretical)

5.3400,5.3200

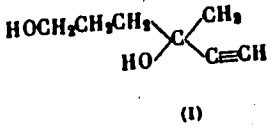
77366
SOV/79-30-1-27/78

AUTHORS: Favorskaya, T. A., Sergiyevskaya, O. V.

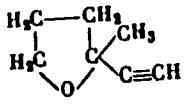
TITLE: Concerning the Mechanism of Dehydration of γ-Glycols. VII. Concerning the Reactivity of Acetylenic Hydrogen in Substituted, Oxygen-Containing Acetylene Derivatives

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 132-134 (USSR)

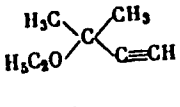
ABSTRACT: Compounds (I) through (IV) react with ammoniacal silver nitrate with different degrees of facility:



(I)



(II)



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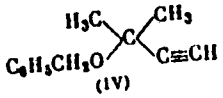

(IV)

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Concerning the Mechanism of Dehydration of γ-Glycols. VII. Concerning the Reactivity of Acetylenic Hydrogen in Substituted, Oxygen-Containing Acetylene Derivatives

77366
SOV/79-30-1-27/78

Compounds II and III readily form acetylides at room temperature; I reacts only on boiling, while IV fails to react even on prolonged boiling (no precipitate is formed). It was assumed that the lack of reactivity of I and IV was due to intermolecular hydrogen bonding (the geometry of these molecules precludes intramolecular hydrogen bonding). Infrared spectra (see table) indicate (by shifts of the bands) only slight hydrogen bonding in I and IV; II and III, whose spectra show more pronounced shifts (greater degree of hydrogen bonding) still have a fairly acidic acetylenic hydrogen. This indicates that the lack of reactivity of I and IV cannot be due to hydrogen bonding. Nuclear magnetic resonance spectra, a very sensitive indicator of hydrogen bonding, should provide more definite data. The IR spectra were taken by Ye. V. Shuvalova in the laboratory of V. M. Chulanovskiy. There is 1 table; and 6 references, 4 Soviet, 2 U.S. The U.S. references are: M. J. Copley,

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Concerning the Mechanism of Dehydration of γ-Glycols. VII. Concerning the Reactivity of Acetylenic Hydrogen in Substituted Oxygen-Containing Acetylene Derivatives

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SOV/79-30-1-27/78

Compound	ν (in cm⁻¹)		Δν
	Pure Substance	1% solution in CCl4	
(I)	3290 (m)	3315 (vs)	25
(II)	3260 (m)	3315 (vs)	55
	3295 (m)	(sharp)	20
			55 ••
(III)	3260 (m)	3315 (vs)	5
	3310 (m)		
(IV)	3295 (m)	3310 (vs)	15

C. E. Holley, J. Am. Chem. Soc., 61, 1599 (1939); S. C. Stanford, W. Gordy, J. Am. Chem. Soc., 63, 1094 (1941).

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77366
SOV/79-30-1-27/78

Concerning the Mechanism of Dehydration of γ-Glycols. VII. Concerning the Reactivity of Acetylenic Hydrogen in Substituted Oxygen-Containing Acetylene Derivatives

ASSOCIATION: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

SUBMITTED: September 15, 1958

Card 4/4

5.3400

78250
SOV/79-20-3-4/69

AUTHORS: Favorskaya, T. A., Hsu Ting-Yu, Il'ina, L. N.

TITLE: Synthesis and Investigation of the Conversion of Acetylenic α-Glycols With Acetylenic Hydrogen. III. Synthesis of Methyl-Ethynyl-Isopropylethylene Glycol and Methyl-Ethynyl-Isopropylethylene Glycol, and Their Conversion Into Substituted Tetrahydrofuranones With Sulfuric Acid

PERIODICAL: Zhurnal obshchey khimii, 1950, Vol 30, Nr 3, pp 726-735 (USSR)

ABSTRACT: Secondary-tertiary α-glycols with unsubstituted acetylenic hydrogen (3,5-dimethylhex-1-yne-3,4-diol (VI) and 3-methylhept-1-yne-3,4-diol (XI)) were first investigated by the authors. The synthesis of VI and IX was made in 3 stages: (1) synthesis of secondary ethynyl alcohol; (2) its hydration to ketoalcohol; and (3) the condensation of the latter with acetylene. The starting methylisopropylethynylcarbinol (I) was obtained from isobutyraldehyde by the I. A. Favorskaya method

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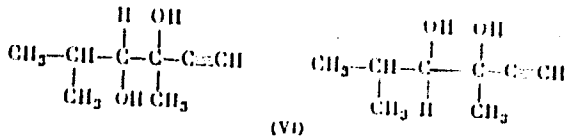
(this journal, Vol 28, p 1785 (1958)) and McGrew and the Adams method (J. Am. Chem. Soc., Vol 59, p 1497 (1937)), in 73% yield in both instances. The hydration of carbinol I gave acetylisopropylcarbinol (II), bp 74-75°C at 36 mm, yield 76%.

$$\underset{\text{(I)}}{CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CHOH-C\equiv CH} \xrightarrow[HgO]{H_2SO_4} \underset{\text{(II)}}{CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CHOH-CO-CH_3}$$

Glycol VI was obtained with Favorskiy-Onishenko method (this journal, Vol 11, p 1111 (1941)) on condensation of II with acetylene in the presence of KOH, and also in reaction of II with sodium acetylenide in liquid ammonia. In the first instance, liquid glycol VI was obtained (yield 58%, bp 104-105° C at 20 mm) which on distillation crystallized partially (crystalline glycol, mp 64-65° C).

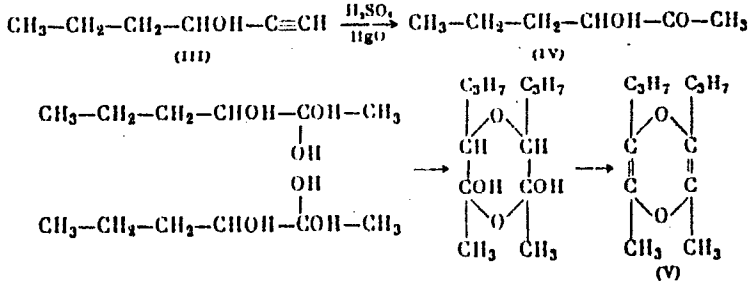
It was shown that VI exists in two isomeric forms:



(VI)

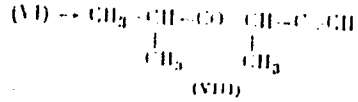
In the second instance, only liquid glycol VI was obtained in 78-85% yield. Glycol XI was synthesized similarly. n-Propylethynylcarbinol (III, bp 42-43° C at 8 mm) was obtained from butyraldehyde in 47-55% yield with the I. A. Favorskaya method, and in 30% yield with McGrew and Adams method. Hydration of III gave a first fraction, n-propylacetylcarbinol (IV, bp 58-60° C at 9 mm, yield 30%), and second fraction identified as 2,6-dimethyl-3,5-dipropyl-1,4-dioxadiene (V, bp 124-126° C, yield 30%) presumably formed from the condensation of 2 hydrated molecules of carbinol IV

with subsequent separation of 4 water molecules.



The formation of the by-product V can be avoided completely by diluting III with ethyl ether before hydration. Carbinol IV in reaction with sodium acetylenide in liquid ammonia gave the diol XI in 30-35% yield (bp 87-89° C at 4 mm). A pinacol rearrangement took place when liquid glycol VI was boiled with 20% sulfuric acid,

giving 3,5-dimethylhex-1-yn-4-one (VIII, bp 117-122° C).

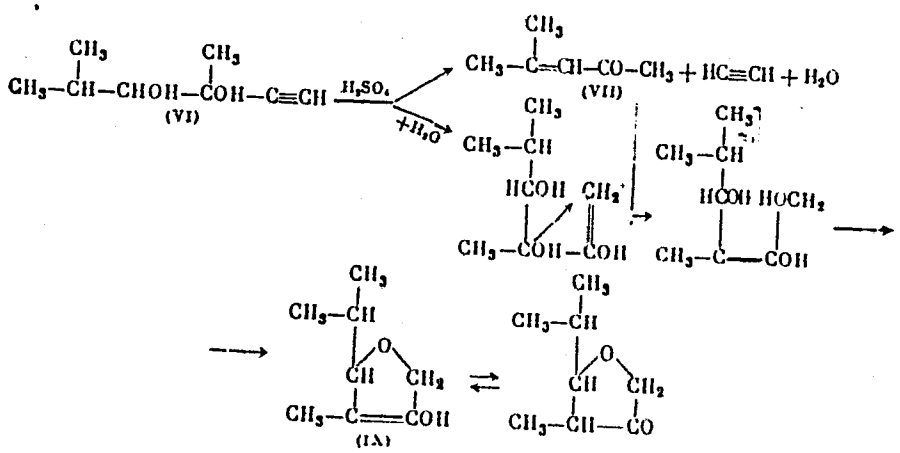


(VIII)

Glycols VI and XI treated with concentrated sulfuric acid at -10° C under conditions described by A. S. Onishchenko (this journal, Vol 13, p 616 (1943)) gave a mixture of 3-methyl-2-isopropyl-(respectively, n-propyl)-4-ketotetrahydrofurans with the corresponding enols (IX, yield 44%) and (XII, yield 28%).

Synthesis and Investigation of the Conversion of Acetylenic α-Glycols With Acetylenic Hydrogen. III

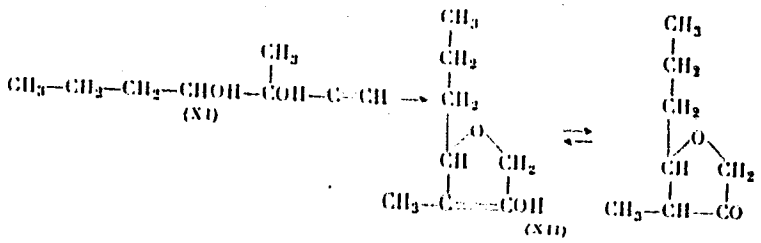
78250
SOV/79-20-3-4/69



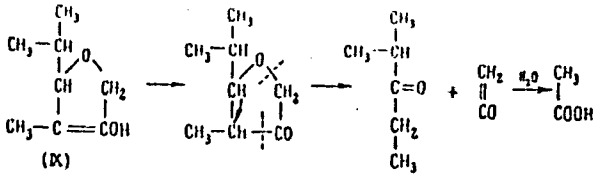
Card 6/8

Synthesis and Investigation of the Conversion of Acetylenic -Glycols With Acetylenic Hydrogen. III

78250
SOV/79-20-3-4/69



Enol IX decomposed readily in alkaline media (sodium in liquid ammonia; sodium ethoxide; 20% KOH) forming ethyl isopropyl ketone and acetic acid, according to the suggested reactions



Card 7/8

Synthesis and Investigation of the Conversion of Acetylenic -Glycols With Acetylenic Hydrogen. III

78250
SOV/79-20-3-4/69

Spectrophotometer SF-11 was used in the study. There are 17 references, 1 U.S., 1 French, 3 German, 12 Soviet. The U.S. reference is: McGrew, Adams, J. Am. Chem. Soc., 1497 (1937).

ASSOCIATION: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

SUBMITTED: August 31, 1959

Card 8/8

FAVORSKAYA, T.A.; MARSHUYEVA, A.V.; SYUY DIN-YUY [Hsü Ting-yü]

Synthesis and investigation of conversions of acetylenic δ-glycols with a free acetylenic hydrogen. Part 4: Synthesis of trimethylacetylenylethylene glycol and 3,4-dimethyl-1-hexyne-3,4-diol, and their conversion into substitutes tetrahydrofuranones under the influence of sulfuric acid. Zhur.ob.khim. 30 no.8:2516-2521 Ag '60. (MIRA 13:8)

1. Leningradskiy gosudarstvennyy universitet.
(Ethanediol) (Hexynediol) (Furanone)

FAVORSKIY, Aleksey Yevgrafovich, khimik, prof., akademik, Geroy Sotsialisticheskogo Truda [1860-1845]; FAVORSKAYA, T.A., prof. [translator]; DANILOV, S.N., otv. red.; DOMNIN, N.A., prof., doktor khim. nauk, red.; MURASHOV, G.M., kand. khim. nauk, red.; KAPLAN, M.Ya., red.izd-va; KONDRAT'YEVA, M.N., tekhn. red.

[Akademician Alekseĭ Evgrafovich Favorskiĭ; selected works] Izbrannye trudy. Moskva, Izd-vo Akad. nauk SSSR, 1961. 790 p. (MIRA 14:11)

1. Chlen-korrespondent AN SSSR (for Danilov).
(Favorskii, Alekseĭ Evgrafovich, 1860-1945) (Chemistry, Organic)

S/079/61/031/001/005/025
B001/B066

AUTHORS: Favorskaya, T. A. and Syuy Din-yuy

TITLE: Synthesis and Study of Conversions of Acetylene-α-glycols. V. Study of the Interaction of 3,4,6-Trimethyl-heptine-1-diol-3,4 and 4,5-Dimethyl-heptine-2-diol-4,5 With Concentrated Sulfuric Acid at Low Temperature

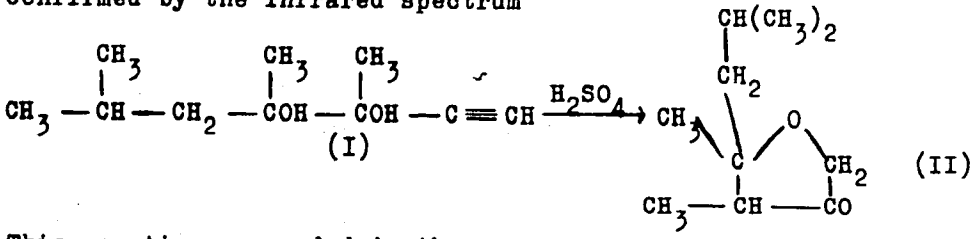
PERIODICAL: Zhurnal obshchey khimii, 1961, Vol. 31, No. 1, pp. 80 - 85

TEXT: Following their previous papers (Refs. 1, 2), the authors studied the conversion of two α-acetylene glycols, i. e. of 3,4,6-trimethyl-heptine-1-diol-3,4 (I), and 3,4-dimethyl-heptine-2-diol-3,4 (V) with concentrated sulfuric acid at low temperature. It was interesting to study the behavior of glycol (I) containing a branched isobutyl radical, and the effect of substituting the methyl group for the hydrogen of acetylene on glycol 3,4-dimethyl-hexine-1-diol-3,4 which had previously been studied. This glycol contains only aliphatic radicals and it had to be clarified whether it would yield hydroxy-dihydrofuran, according to E. D. Venus-Danilova, or tetrahydrofuranone. 3,4,6-trimethyl-heptine-1-diol-3,4 (I)

Synthesis and Study of Conversions of Acetylene-α-glycols. V. Study of the Interaction of 3,4,6-Trimethyl-heptine-1-diol-3,4 and 4,5-Dimethyl-heptine-2-diol-4,5 With Concentrated Sulfuric Acid at Low Temperature

S/079/61/031/001/005/025
B001/B066

was obtained by condensation of methyl-isobutyl-acetyl carbinol with sodium acetylenide in liquid ammonia (86 % yield). The reaction of this glycol with concentrated sulfuric acid at 10 - 15°C gave 2,3-dimethyl-2-isobutyl-4-ketotetrahydrofuran (II) (equation 1). Its structure was confirmed by the infrared spectrum



(I) (II)

This reaction proceeded in the same way as in the case of the other glycols previously studied (Ref. 2). Surprisingly, the cleavage of tetrahydrofuran (II) occurred only on boiling with 50 % potassium lye. Half of

the initial product was left behind in unchanged condition. The cleavage products were acetic acid and a ketone which gave a dense, dark-red oil on reaction with 2,4-dinitro-phenyl hydrazine. According to analysis, this oil corresponds to the 2,4-dinitro-phenyl-hydrazone of 2,3-dimethyl-2-isobutyl-4-ketotetrahydrofuran. Two ketones (III) and (IV) may be formed by this cleavage, but the ketone obtained was found to correspond to the formula 3,5-dimethyl-hexanone-2 (IV). 3,4-dimethyl-heptine-2-diol-3,4 (V) was obtained from methyl-ethyl-acetyl carbinol with sodium methyl acetylenide in liquid NH_3. On reaction with concentrated sulfuric acid at $-10^{\circ}C$ compound (VI) resulted, which was identified as 2,3,5-trimethyl-2-ethyl-3-hydroxy-dihydrofuran-2,3 (VI) on the basis of the following properties: absence of a carbonyl group and an enol hydroxyl, easy addition of hydrogen to the double bond. Both conversions are assumed to take place according to one mechanism with intermediate formation of ethylsulfuric acid which is hydrolyzed, or separates again sulfuric acid on formation of the oxygen bridge. O. A. Zakhar'yevskaya is mentioned. There are 4 Soviet references.

Synthesis and Study of Conversions of Acetylene-A-glycols. V. Study of the Interaction of 3,4,6-Trimethyl-heptine-1-diol-3,4 and 4,5-Dimethyl-heptine-2-diol-4,5 With Concentrated Sulfuric Acid at Low Temperature

S/079/61/031/001/005/025
B001/B066

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: February 29, 1959

Card 4/4

S/079/61/031/001/006/025
B001/B066

AUTHORS: Favorskaya, T. A. and Syuy Din-yuy

TITLE: Mechanism of Dehydration of γ-Glycols. VIII. Study of the Reaction of 3-Methyl-1-phenyl-hexine-1-diol-3,6 With Dilute Sulfuric Acid

PERIODICAL: Zhurnal obshchey khimii, 1961, Vol. 31, No. 1, pp. 86 - 89

TEXT: The authors studied the dehydration of acetylene-γ-glycol, i. e., 3-methyl-1-phenyl-hexine-1-diol-3,6 (I) obtained from acetopropyl alcohol and magnesium bromo phenyl acetylene. When heating this glycol with 10 and 5 % sulfuric acid, 2,2-methyl-phenyl-acetylenyl-tetrahydrofuran (II) resulted in good yield. No dehydration occurred on distillation of this glycol (I) with 1.6 % sulfuric acid under conditions which yield ethylene alcohols from aliphatic glycols. On repeated synthesis of glycol (I), however, the glycol itself and two dehydration products, enine alcohol (III) and substituted tetrahydrofuran (II), separated on distillation of the reaction products. Dehydration of glycol (I) thus proceeded in two directions, owing to certain casual conditions:

Card 1/3

Mechanism of Dehydration of γ-Glycols. VIII. Study of the Reaction of 3-Methyl-1-phenyl-hexine-1-diol-3,6 With Dilute Sulfuric Acid

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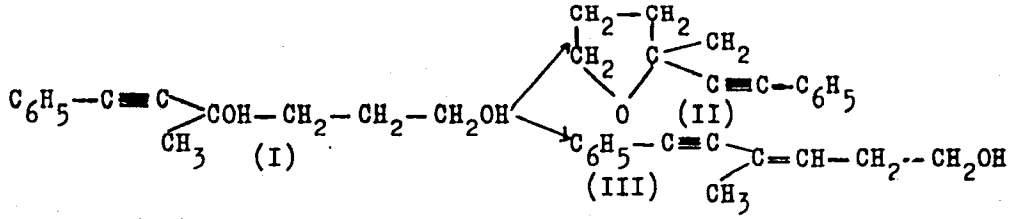
B001/B066



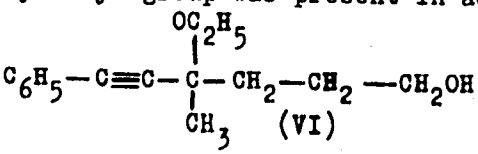
Product (II) neither reacts with 2,4-dinitro-phenyl hydrazine nor with methyl magnesium iodide, and takes up two hydrogen molecules on hydrogenation. When oxidizing (II) with potassium permanganate, benzoic acid, 2-methyl-2-formyl-5-ketotetrahydrofuran (IV), and 2-methyl-2-carboxy-5-ketotetrahydrofuran (V) were separated (equation 2), to give a lactone grouping. The structure of enine alcohol (III) was confirmed by hydrogenation, where three hydrogen molecules were taken up, and by ozonization in which benzoic, pyrotartaric, and acrylic acid were separated. The monoethyl ether of glycol (VI), 3-methyl-1-phenyl-3-ethoxy-hexin-1-ol-6, was obtained from glycol (I) with sodium and ethyl bromide in liquid NH_3.

Card 2/3

Mechanism of Dehydration of γ-Glycols. VIII. Study of the Reaction of 3-Methyl-1-phenyl-hexine-1-diol-3,6 With Dilute Sulfuric Acid

S/079/61/031/001/006/025
B001/B066

When heating the ether with alkali lye, no cleavage occurs with formation of phenyl acetylene and acetopropyl alcohol, which indicates that no free hydroxyl group was present in addition to the triple bond:



$C_6H_5-C\equiv C-C(OC_2H_5)(CH_3)-CH_2-CH_2-CH_2OH$ (VI)

O. V. Sergiyevskaya and N. P. Ryzheva are mentioned. There are 3 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: February 29, 1959

Card 3/3

FAVORSKAYA, T.A.; SHEVCHENKO, Z.A.

Synthesis and study of the transformations of glycols of the δ-series. Part 1: Transformations of 2,3,6-trimethyl-5-keto-3-hepten-2,6-diol. Zhur. ob. khim. 31 no.8:2526-2533 Ag '61. (MIRA 14:8)

1. Leningradskiy gosudarstvennyy universitet imeni A.A. Zhdanova.

(Glycols)

FAVORSKAYA, T.A.; SHEVCHENKO, Z.A.

Synthesis and conversions of glycols of the δ-series. Part 2: Conversions of 3,4,7-trimethyl-6-keto-4-nonene-3,7-diol. Zhur. ob. khim. 32 no.1:46-50 Ja '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet.
(Glycols)

FAVORSKAYA, T.A.; PORTNYAGIN, Yu.M.

Conversions of acetylenic β-glycols. Part 3: Interaction of 3,5-dimethyl-1-hexyne-3,5-diol and 3,4-dimethyl-1-hexyne-3,5-diol with concentrated sulfuric acid at low temperature. Zhur.ob.khim. 32 no.7:2122-2127 Jl '62. (MIRA 15:7)

1. Leningradskiy gosudarstvennyy universitet.
(Glycols) (Sulfuric acid)

FAVORSKAYA, T.A.; SAMUSIK, B.N.

Synthesis and study of conversions of acetylenic α-glycols having a free acetylenic hydrogen. Part 6: Preparation of 3-(1-hydroxy-1-cyclohexyl)-1-butyn-3-ol and study of its conversion under the effect of sulfuric acid. Zhur.ob.khim. 32 no.7:2128-2134 Jl '62. (MIRA 15:7)

1. Leningradskiy gosudarstvennyy universitet.
(Glycols) (Sulfuric acid)

FAVORSKAYA, T. A.; SHEVCHENKO, Z. A.

Synthesis and transformations of glycols of the α-series. Part 3: Condensation products of 1-acetylcyclohexan-1-ol. Zhur. ob. khim. 32 no.12:3918-3922 D '62. (MIRA 16:1)

1. Leningradskiy gosudarstvennyy universitet imeni A. A. Zhdanova.

(Cyclohexanol) (Condensation products)

FAVORSKAYA, T.A.; PORTNYAGIN, Yu.M.

Synthesis of enyne hydrocarbons starting from acetylenic β-glycols. Zhur. ob. khim. 33 no.8:2792 Ag '63.
(MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

FAVORSKAYA, T.A.; SAMUSIK, B.N.

Acetylenic hydroxy acids, their synthesis and transformations. Part 1: Synthesis of esters of acetylenic hydroxy acids starting from esters of pyruvic and diethylacetoacetic acids. Zhur. ob.khim. 33 no.10:3157-3159 O '63. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

FAVORSKAYA, T.A.; TOLSTOPYATOV, G.M.

Synthesis and study of transformations of acetylenic α-glycols. Part 8: 3,4,5,5-Tetramethyl-1-hexyne-3,4-diol and 3-methyl-1-hexyne-3,4-diol and their transformations under the effect of concentrated sulfuric acid. Zhur.ob.khim. 33 no.10:3160-3166 O '63. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

FAVORSKAYA, [illegible]A.; KONONOVA, K.A.

Gas-liquid and thin-layer chromatography of certain amines.
Vest. LGU 19 no.22:145-147 '64 (MIRA 18:1)

FAVORSKAYA, T.A.; PORTNYAGIN, Yu.M.

Synthesis of β-oxides of the acetylene series. Zhur.ob.khim. 34 no.2: 699-700 F '64. (MIRA 17:3)

1. Leningradskiy gosudarstvennyy universitet.

FAVORSKAYA, T. A.; TOLSTOPYATOV, G. M.

Synthesis of substituted 4-hydroxy-3-cyanotetrahydrofurans. Zhur. ob. Khim. 34 no.6:2091 Je '64. (MIRA 17:7)

1. Leningradskiy gosudarstvennyy universitet.

FAVORSKAYA, T.A.; PORTNYAGIN, Yu.M.

Transformations of B. glycols of the acetylene series. Part 5: Synthesis of glycol chloroacetates and study of their reactions with alkalies. Zhur. ob. khim. 35 no.3:435 439 Mr '65. (MIRA 18:4)

1. Leningradskiy gosudarstvennyy universitet.

FAVORSKAYA, T.A.; PORTNYAGIN, Yu.M.

Transformations of β-glycols of the acetylene series. Part 6: Effect of relative position of the functional groups of molecules of chlorethers of acetylenic B-glycols on their reaction with alkalies. Zhur. ob. khim. 35 no.3:440-442 Mr '65. (MIRA 18:4)

1. Leningradskiy gosudarstvennyy universitet.

FOTEYEV, S.P.; FAVORSKAYA, Ye.Ya.; MARKOV, I.G.

Cane sulfite pulp. Bum. prom. 36 no.8:8-10 Ag '61. (MIRA 14:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut tsellyuloznoy i bumazhnoy promyshlennosti.
(Woodpulp)

ALIKHASHKIN, Ya.I. (Moskva); FAVORSKIY, A.P. (Moskva); CHUSHKIN, P.I. (Moskva)

Calculation of the flow in a flat Laval nozzle. Zhur. vych. mat i mat. fiz. 3 no.6:1130-1134 N-D '63. (MIRA 17:1)

L 16115-66 EWP(m)/EWA(h)/EWP(k)/EWT(d)/EWT(1)/EWT(m)/FCS(k)/ETC(m)-6/T-2/EWA(d)/EWA(1)/EWP(w)/EWP(v) EM/WW

ACC NR: AP5025120 SOURCE CODE: UR/0208/65/005/005/0955/0959

AUTHOR: Favorskiy, A. P. (Moscow)

ORG: none

TITLE: Computation of Laval nozzles

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 5, no. 5, 1965, 955-959

TOPIC TAGS: Laval nozzle, flow analysis, integral relation, gas flow, flow velocity, plane flow, nozzle flow

ABSTRACT: The author investigates the problem of stationary and irrotational flow of an ideal gas in a plane and in axisymmetric Laval nozzles. For the sake of definiteness it was assumed that the subsonic part of the nozzle was extended to infinity where its edge became parallel to the axis of symmetry; otherwise, the contour of the edge was assumed as sufficiently smooth to assure the absence of shock waves. Assuming also that on every flow line the velocity of gas passed from subsonic to supersonic speed, the corresponding sonic line was constructed.

Card 1/2

UDC: 517.9:533.7

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ACC NR: AP5025120

according to the computational results. Solutions of various problems involved were obtained by the method of integral relations. The author thanks P. I. Chushkin for advice. Orig. art. has: 2 figures and 9 formulas.

SUB CODE: 20/ SUBM DATE: 15Sep64/ ORIG REF: 003/ OTH REF: 001

Card 2/2

FAVORSKIY, Aleksey Yevgrafovich, khimik, prof., akademik, Geroy Sotsialisticheskogo Truda [1860-1845]; FAVORSKAYA, T.A., prof. [translator]; DANILOV, S.N., otv. red.; DOMNIN, N.A., prof., doktor khim. nauk, red.; MURASHOV, G.M., kand. khim. nauk, red.; KAPLAN, M.Ya., red.izd-va; KONDRAT'YEVA, M.N., tekhn. red.

[Akademician Aleksei Evgrafovich Favorskii; selected works] Izbrannye trudy. Moskva, Izd-vo Akad. nauk SSSR, 1961. 790 p. (MIRA 14:11)

1. Chlen-korrespondent AN SSSR (for Danilov).
(Favorskii, Aleksei Evgrafovich, 1860-1945) (Chemistry, Organic)

FAVORSKIY, B.A.

Works include: "Changes in the Central Nervous System in Connection with Trauma of the Peripheral Nerves", Naval Med Acad Pub House, Leningrad, [redacted] 1946.

SO: [redacted]S 461, 21 Apr '55, Conf.

FAVORSKIY, B.A.

Practical significance of intramural formation of the peripheral nerves. Nevropat. psikhiat., Moskva 20 no.6:65-69 Nov-Dec 51. (CIML 21:4)

1. Professor. 2. Of the Department of Nervous Diseases (Head—Prof. B.A. Favorskiy), Leningrad Stomatological Institute.

RAZDOL'SKIY, I.Ya., professor; GALKIN, V.S., professor, polkovnik med. sluzhby; FAVORSKIY, B.A., professor; SAMOTOKIN, B.A., dotsent, podpolkovnik med. sluzhby.

"Principles of neurosurgical practice". Reviewed by I. IA. Razdol'skii and others. Khirurgiia, no.9:85-88 S '55. (MLRA 9:2)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR. (for Razdol'skiy)

(NERVOUS SYSTEM--SURGERY)

FAVORSKIY, B.A.

"Innervation of the veins; experimental morphological study" by V.A. Dolg-Saburov. Reviewed by B.A. Favorskii. Zhur.nerv.i psikh. 59 no.7:889-890 '59. (MIRA 12:11)
(VEINS--INNERVATION) (DOLG-SABUROV, V.A.)

FAVORSKIY, B.A.

"Pharmacotherapeutic handbook for the neuropathologist" by G.D. Aronovich. Reviewed by B.A.Favorskii. Zhur.nevr.i psikh 60 no.8: 1074 '60. (MIRA 13:9)

(PSYCHOPHARMACOLOGY) (ARONOVICH, G.D.)

FAVORSKIY, B.A.

"Exercise therapy in treating sequelae of circulation disorders of the brain" by V.A.Tret'iakova. Reviewed by B.A.Favorskii. Zhur. nevr.i psikh. 60 no.9:1234-1235 '60. (MIRA 14:1)
(EXERCISE THERAPY) (BRAIN--BLOOD VESSELS)
(TRET'IAKOVA, V.A.)

FAVORSKIY, B.A.

"Myasthenia" by V.S. Lobzin. Reviewed by B.A. Favorskii. Zhur. nerv. i psikh. 61 no. 1:154-155 '61. (MIRA 14:4)
(MYASTHENIA GRAVIS) (LOBZIN, V.S.)

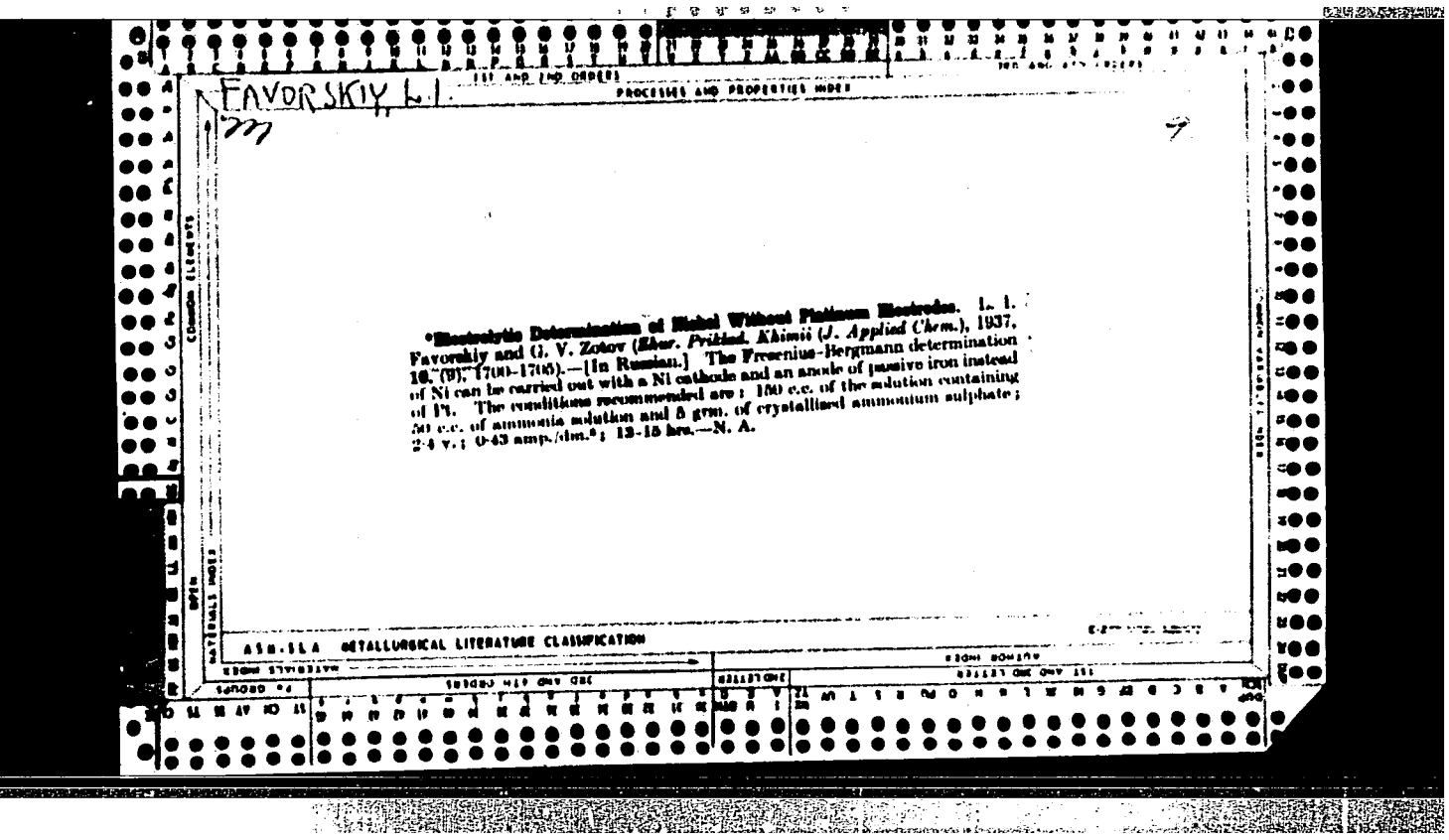
FAVORSKIY, B.A. (Leningrad)

Intratrunk structure of the peripheral nervous system; survey of the literature. Zhur.nevr.i psikh. 61 no.2:305-309 '61. (MIRA 14:6)

(NERVES, PERIPHERAL)

FAVORSKIY, B.A.

"Myotonia" by A.L. Zinchenko. Reviewed by B.A. Favorskii.
Zhur. nevr. i psikh. 62 no.5:790-791 '62. (MIRA 15:6)
(MYOTONIA)
(ZINCHENKO, A.L.)



FAVORSKIY, L. I.

777

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*Electrolytic Determination of Nickel Without Platinum Electrodes. L. I. Favorskiy and G. V. Zotov (Khar. Priklad. Khimii (J. Applied Chem.), 1937, 10, (9), 1703-1705).—[In Russian.] The Fresenius-Bergmann determination of Ni can be carried out with a Ni cathode and an anode of passive iron instead of Pt. The conditions recommended are: 150 c.c. of the solution containing 50 c.c. of ammonia solution and 5 grm. of crystallised ammonium sulphate; 2·4 v.; 0·43 amp./dm.²; 13-15 hrs.—N. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

FAVORSKIY, L.I.

PROCESSES AND PROPERTIES INDEX

Double decomposition in absence of a solvent. LII. Mutual system: chlorides and bromides of lead and thallium. L. I. Favorskii. *Ann. secteur anal. phys.-chim., Inst. chim. gén.* (U. S. S. R.) 13, 281-9(1940); cf. *C. A.* 35, 5050.—Mönkemeyer's findings (*Neues Jahrb. Mineral., Geol.*, Beilage Bd. 22, 1-47(1906)) for the systems $PbCl_2$-$PbBr_2$ and TlCl-TlBr are confirmed, with minor modifications. In the system $PbCl_2$-TlCl a 1:1 compd., m. p. [illegible]° (decompn.), is formed, in addition to the 2:1 and 1:3 compds. reported by Korreng (*C. A.* 8, 1714). 2:1, m. p. [illegible]°, 1:1, m. p. [illegible]° (decompn.), and 1:3, m. p. [illegible]°, compds. are formed in the system $PbBr_2$-TlBr. The phase diagram of the system $PbCl_2 + 2TlBr \rightleftharpoons PbBr_2 + 2TlCl$ is constructed from the above data. LIII. Irreversible mutual system: nitrates and chlorides of lithium and sodium. V. P. Blidin. *Ibid.* 291-7.—Fusion diagrams for the systems $LiNO_3$-$NaNO_3$, $LiNO_3$-LiCl, $LiNO_3$-NaCl, and $NaNO_3$-LiCl are given, and the phase diagram of the system $NaNO_3 + LiCl \rightleftharpoons NaCl + LiNO_3$ is hence constructed. LIV. Quaternary mutual system: fluorides, bromides and chlorides of sodium and potassium. V. D. Polyakov. *Ibid.* 299-320.—The phase diagram of the system NaF-NaCl-NaBr-KF-KCl-KBr is constructed, on the basis of the constituent binary, ternary, and quaternary systems.

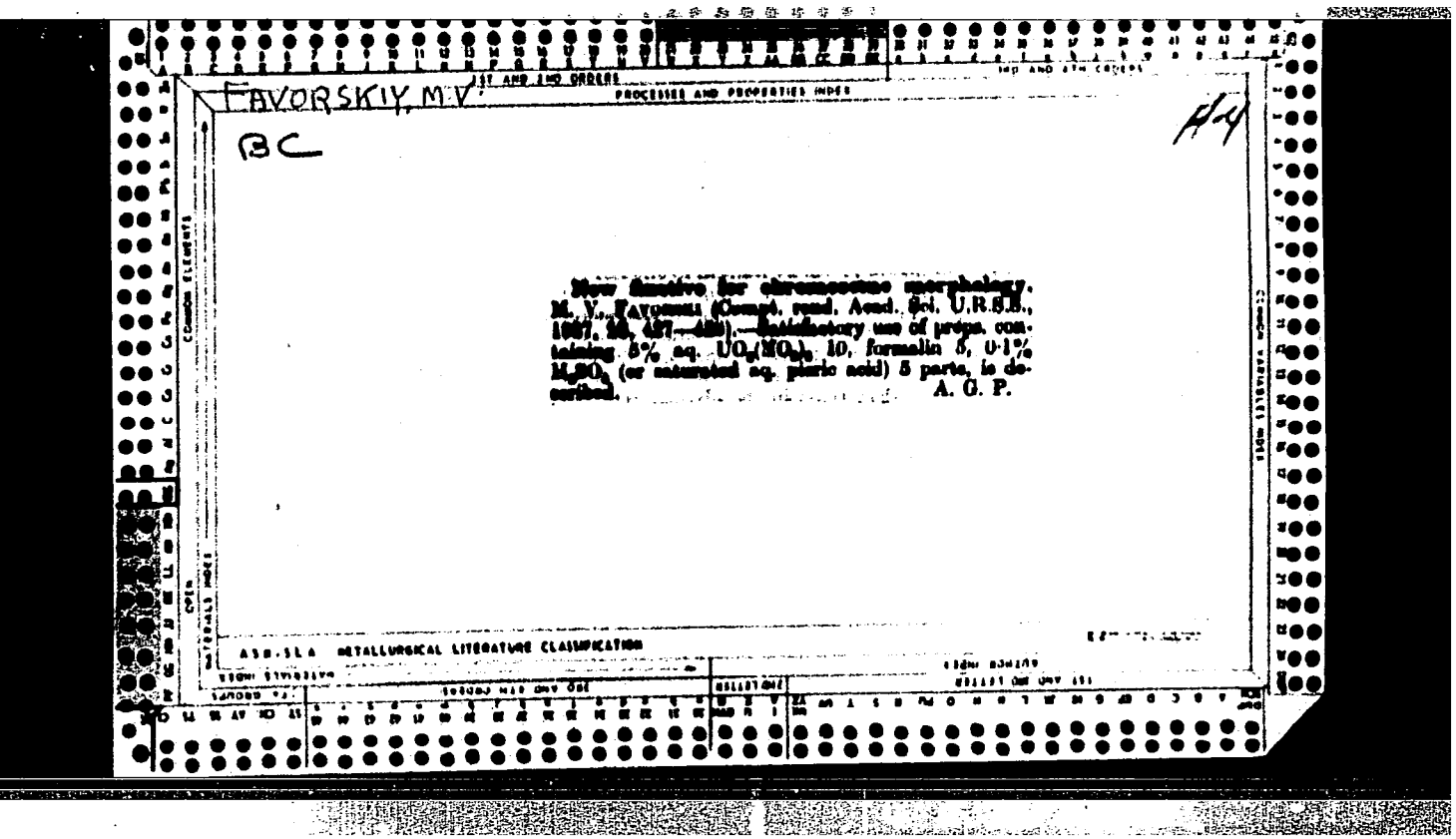
B. C. P. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

FAVORSKIY, M.S.

Dynamics of the total protein and protein fractions of blood serum in typhoid and paratyphoid diseases. Vrach.delo no.10:1095-1097 O '59. (MIRA 13:2)

1. Kafedra infektsionnykh bolezney (ispolnyayushchiy obyazannosti zaveduyushchego - dotsent I.V. Chernov) Pervogo Leningradskogo meditsinskogo instituta imeni akad. I.P. Pavlova.
(PROTEIN METABOLISM) (TYPHOID FEVER) (PARATYPHOID FEVER)

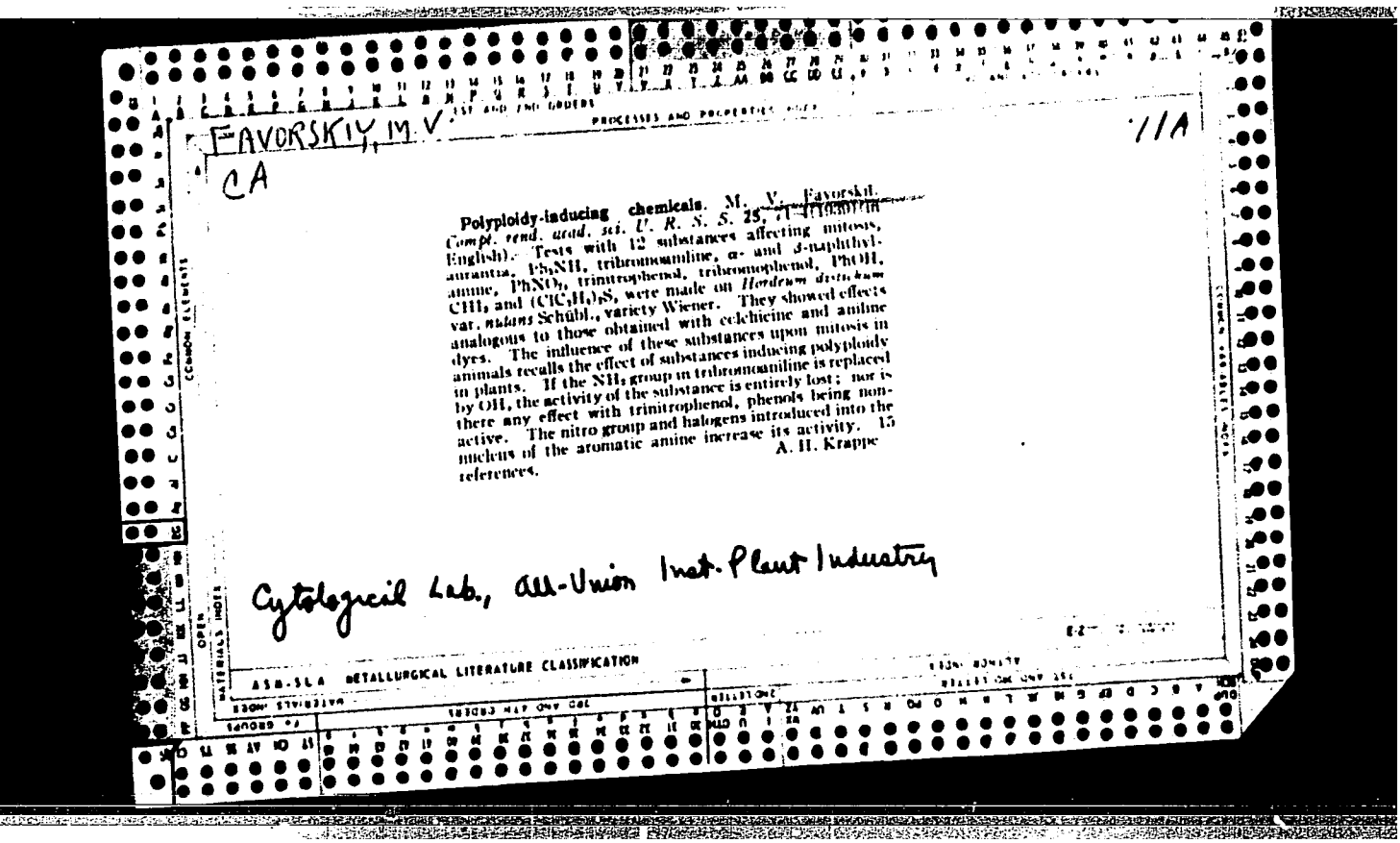


FAVORSKIY, M.V.

BC

A-4

Stem fixative for chromosome morphology. M. V. Favorskii (Compt. rend. Acad. Sci. U.R.S.S., 1937, 16, 427—430).—Satisfactory use of prepn. containing 5% aq. $UO_2(NO_3)_2$ 10, formalin 5, 0·1% H_2SO_4 (or saturated aq. picric acid) 5 parts, is described. A. G. P.



FAVORSKIY, M. V.

CA

11A

Polyploidy-inducing chemicals. M. V. Favorskii. *Compt. rend. acad. sci. U. R. S. S.* 25, [illegible] (in English).—Tests with 12 substances affecting mitosis, aurantia, $I{\cdot}C_6H_3NH_2$, tribromoaniline, α- and β-naphthylamine, $PhNO_2$, trinitrophenol, tribromophenol, PhOH, CH_3I, and $(ClC_2H_4)_2S$, were made on *Hordeum distichum* var. *nutans* Schübl., variety Wiener. They showed effects analogous to those obtained with colchicine and aniline dyes. The influence of these substances upon mitosis in animals recalls the effect of substances inducing polyploidy in plants. If the NH_2 group in tribromoaniline is replaced by OH, the activity of the substance is entirely lost; nor is there any effect with trinitrophenol, phenols being nonactive. The nitro group and halogens introduced into the nucleus of the aromatic amine increase its activity. 15 references.

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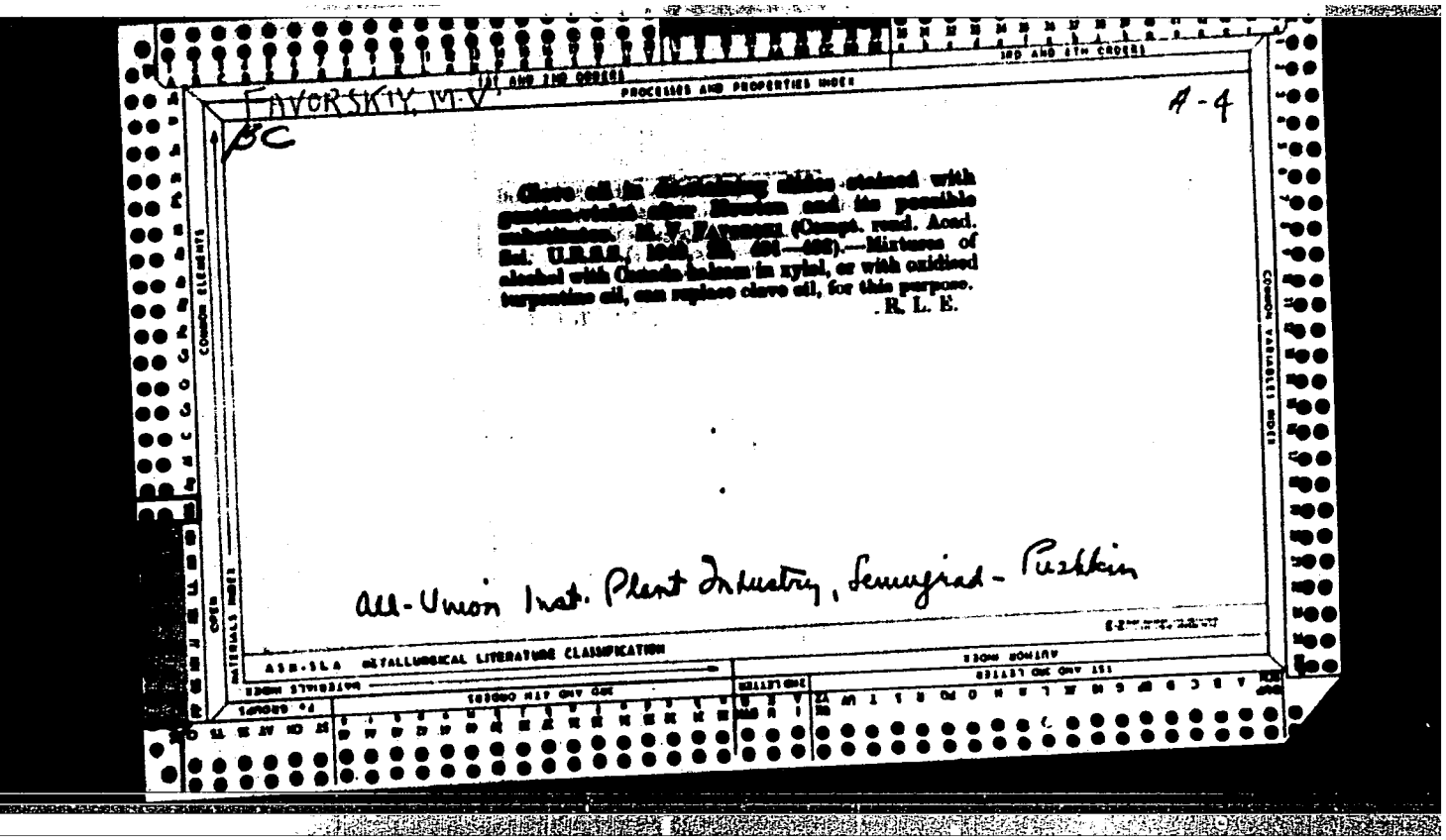
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



KHOLSHCHEVNIKOV, K.V.. Prinimali uchastiya: KAVORSKIY, O.N., kand.tekhn. nauk; DMITRIYEVA, L.A., inzh.; AGAPOVA, N.I., inzh.. GRIGORASH, K.I., izdat.red.; ORESHKINA, V.I., tekhn.red.

[Some problems in the theory and design of turbojet engines] Nekotorye voprosy teorii i rascheta TRD. Moskva, Gos.izd-vo obor.promyshl., 1960. 116 p. (MIRA 13:5)
(Airplanes--Turbojet engines)

26.2311
26.2254

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S/024/61/000/004/009/025
E194/E155

AUTHORS: Grekov, L.I., and Favorskiy, O.N. (Moscow)

TITLE: The influence of allowing for the viscosity of the parameters of a magneto-gas-dynamic generator

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.4, pp. 46-54

TEXT: Analysis of magneto-gas-dynamic generators, in which electric power is generated by interaction between a magnetic field and a moving jet of electrically conducting gas, is usually based on solution of the differential equations of a uniform flow of electrically conducting fluid in a transverse magnetic field. In general, the equations ought to allow for the terminal values of the electrical conductivity of the working medium, for friction, for transfer to the walls, for inlet and discharge losses and others, but many of these values are usually omitted. The present work discusses the influence of allowing for friction on selection of generator parameters. In practical generators it is to be expected that viscosity forces will be commensurate with magnetic forces. The analysis relates to a conduction circuit generator

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because it is simpler than the induction type. In considering the generator parameters, the induced magnetic field may be neglected because the magnetic Reynolds numbers are small. The magnetic field is assumed uniform across the section and constant over the length of the duct and the gas electrical conductivity is assumed to be a scalar magnitude, which corresponds to the condition that the frequency of collision between gas particles is much greater than the cyclotron frequency. It is, moreover, assumed that the coefficient of friction is unaffected by the presence of a magnetic field. The analysis relates to air, or combustion products, containing 1% K_2CO_3 to increase the electrical conductivity. It is assumed that this does not alter the thermal and other physical properties of the air. The present work makes no attempt to select the parameters of a magneto-gas-dynamic generator; its only object was to determine the fundamental relationships. Accordingly the absolute values of gas temperature, magnetic induction and particularly the gas pressure, should not be considered as recommended values. The system of differential equations for the flow of electrically conducting gas in a magnetic field, allowing for friction, includes an energy equation,

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a continuity equation, and a momentum equation. From these and from a generalised expression for Ohm's law and an equation of polytropy a number of equations are derived which serve as the basis of the analysis. Altogether these equations include 15 variables of which it is convenient to consider the following seven as independent variables: P_1, P_2 (inlet and outlet pressure), T_1 (inlet temperature), B (breadth), U (gas velocity), D_{cp} (hydraulic diameter), and ℓ (length). The equations may then be used to determine the discharge temperature T_2, the current density j, the electric stress E and the efficiency $\bar{\eta}_n$. The influence of the length on the generator characteristics is first considered. If friction is ignored, it is easily shown that increasing the length of the generator causes a steady increase in efficiency because the current density decreases, reducing the Joule effect, and thus making the process more nearly adiabatic. However, when viscosity is allowed for, increasing the length of the generator whilst reducing the Joule effect increases the frictional loss. The first factor is most important for short lengths and the second for great. Thus there is an optimum length of generator from the standpoint of efficiency. The calculation

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of this maximum efficiency in particular cases is explained. Consideration of the specific powers as functions of length shows that there are certain generator lengths below which useful power cannot be developed. This follows from the application of the generalised Ohm's law. It is also found that the maximum specific power occurs at shorter lengths than correspond to the maximum efficiency. The influence of the inlet pressure on the generator parameters is then considered and it is shown that increase in the inlet pressure reduces the efficiency, and has other effects associated with the reduction in the conductivity of the gas and increased viscosity effect with increasing pressure. A study of the influence of temperature on the generator parameters shows that the most effective way of improving the efficiency and reducing the optimum length is to increase the inlet temperature. Increasing the inlet gas pressure increases the optimum length and reduces the maximum possible efficiency. Therefore, in the analysis of the characteristics of combined magneto-gas-dynamic generators and gas turbines, particular attention must be paid to the influence of inlet pressure on the characteristics.

Card 4/5

GREKOV, L.I.; MOSKVIN, Yu.V.; ROMANYCHEV, V.S.; FAVORSKIY, O.N.

[Basic properties of certain gases at high temperatures; handbook] Osnovnye svoistva nekotorykh gazov pri vysokikh temperaturakh; spravochnik. Moskva, Mashinostroenie, 1964. 39 p. (MIRA 17:5)

L 01991-67 EWT(l)/EWP(k)/T IJP(c) RM/WW/AT

ACC NR: AM6023686 Monograph UR

21
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Favorskiy, Oleg Nikolayevich

21

Installations for direct transformation of thermal energy into electrical (Ustanovki dlya neposredstvennogo preobrazovaniya teplovoy energii v elektricheskuyu) Moscow, Izd-vo "Vysshaya shkola", 65. 0287 p. illus., biblio. 5,000 copies printed. Textbook for students at institutes of higher technical learning.

TOPIC TAGS: thermoelectric converter, thermoelectric power, thermoelectric equipment, thermoelectric generator, heat transfer

PURPOSE AND COVERAGE: The principal attention of the book is devoted to consideration of thermal energy converters and their effect on the parameters and properties of installations for conversion of thermal energy into electrical, possible circuits of such installations and their characteristics, and the selection of heat-transfer agents in closed circuits. The operation of installations for direct conversion of thermal energy into electrical is achieved consistent with the basic laws of thermodynamics. This specifies the presence of an energy source (thermal), generator (converter), and cooler (device for exhaust of waste heat). High-power installations also require heat-transfer systems. The book is intended as an introductory course for students of advanced courses in power engineering and for engineers becoming familiar with this area of technology and lacking special preparation.

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ACC NR: AM6023686 O

SUB CODE: 10/ SUBM DATE: 220ct65/ ORIG REF: 047/ OTH REF: 016

Card 2/2

L 18889-66 EWT(1)/EPF(n)-2 WW/GW
ACC NR: AP6008136 SOURCE CODE: UR/0281/66/000/001/0143/0150

AUTHOR: Favorskiy, O. N. (Moscow)

43
B

ORG: none

TITLE: The choice of a rational design for a cooling system in space

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 1, 1966, 143-150

TOPIC TAGS: radiative heat exchanger, cooling system, radiative heat transfer, thermodynamics

21, 44, 55

ABSTRACT: Possible arrangements are considered for cooling systems for use in space conditions in which heat loss by radiation from an emitter with a closed cycle system occurs at a temperature substantially greater than the temperature of the cooled object. Two different arrangements with closed cycle systems are investigated (see Fig. 1), and liquid and gas heat exchange agents are considered. The first arrangement consists of a closed-circuit cooled unit 1, an emitter 2, and a pump or

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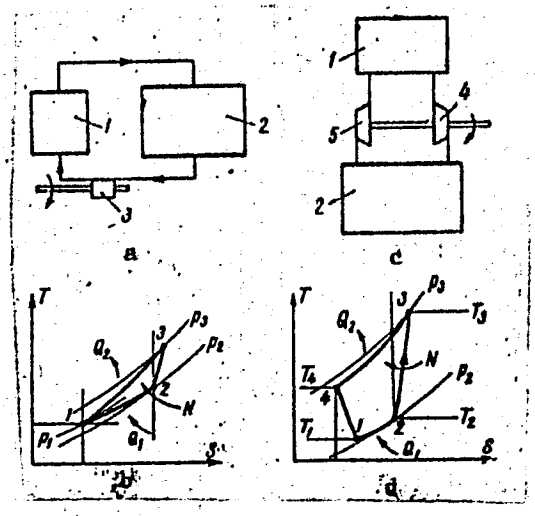

Fig. 1. Designs and cooling system cycles

a - Simplest system; b - simplest cycle of gas system; c - gas-turbine system; d - gas-turbine system cycle.

compressor 3. The second includes a cooled unit 1, an emitter 2, and a gas turbine 3 and 4. Expressions are derived for determining the two basic parameters for space cooling systems: F_x/Q_x, the specific surface of the emitter, where F_x and Q_x are the surface and rate of heat loss respectively, and N/Q_x is the specific power where N is power. These expressions show that the lower the parameters, the more effective

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the cooling systems, although their role is not equivalent and their interrelationship must be taken into account. Optimal parameters are determined for both arrangements which are then compared with the aid of concrete examples. The results presented in graphs show that although the parameters F_x/Q_x of the two optimal gas and liquid systems are close, the power outlay is larger in the case of the gas system, owing to higher requirements for speed and compression. It is also shown that the second design arrangement makes it possible to reduce the radiation surface and to raise the temperature level at which heat emission occurs. Yet, the power outlay is great and in this case, for example, decreasing the specific surface F_x/Q_x by half will necessitate about 1.7 kw for each kw of heat lost by the cooling system. Thus, the choice between the two systems depends on the effectiveness of the main power source; the simplest cooling system would be more efficient with a less efficient power source, though the gas turbine cycle is more so with a more efficient power source. It is stated that the considerations presented are not unique for determining the efficiency of one system or the other. Orig. art. has: 7 figures and 15 formulas. [AB]

SUB CODE: 22, 10 SUBM DATE: 08Jun65/ ATD PRESS: 4217

Card 3/3

PORAY-KOSHITS, B.A.; KVITKO, I.Ya.; FRANKOVSKAYA, I.V.; FAVORSKIY, O.V.

Synthesis of esters of the pyridine series. Zhur.prikl. khim. 37 no. 5:1081-1087 My '64. (MIRA 17:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

KRYUKOVA, L.M.; PRADKINA, S.P.; PVITKO, I.Ya.; PORAY-KOSHITS, E.A.; FAVORSKIY, O.Y.

Esters of aliphatic amino alcohols. Zhur. prikl. khim. 38 no.1: 159-166 Ja '65. (MIRA 18:3)

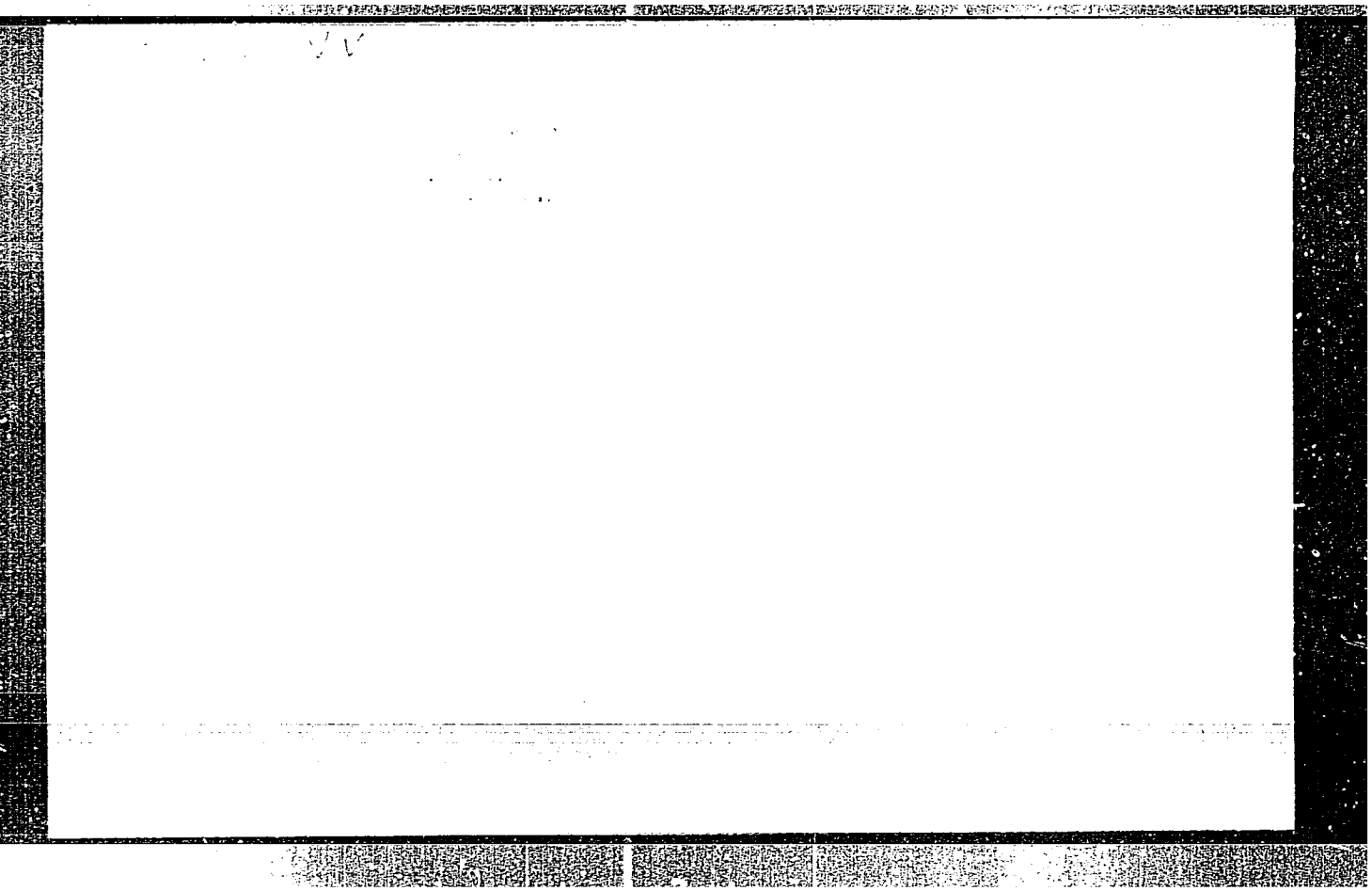
PORAY-KOSHITS, B.A.; KVITKO, I.Ya.; FAVORSKIY, O.V.

Vilsmeier reaction in the aminodibenzyl series. Zhur. org. khim. 1 no.8:1516-1517 Ag '65. (MIRA 18:11)

Power resources in Kazakstan. Alma-Ata-Moskva, Kazakstanskoe kraevoe izd-vo, 1935. 66 p., inc. map.

FAVORSKIY, V.V.

Combustion of ash coal. Izv.AN Kazakh.SSR.Ser.energ.no.6:67-93 '54. (Combustion) (MLRA 9:4)



8(6) SOV/112-59-4-6537

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 19 (USSR)

AUTHOR: Vdovenko, M. I., and Favorskiy, V. V.

TITLE: Temperature Characteristics of the Ashes of Some Kazakhstan Coals

PERIODICAL: V sb.: Issled. fiz. osnov. rabochego protsessa topok i pechey. Alma-Ata, AS Kazakhskaya SSR, 1957, pp 279-284

ABSTRACT: The Power-Engineering Institute, AS Kazakhskaya SSR, has studied the viscosity of slags of typical Kazakhstan coals within t_1 - t_3 temperature range with the purpose of finding the connection between the viscosity and temperature characteristics. A number of heterogeneous compositions with a solid-phase content of 30-50% have been studied. The solid phase has been represented by quartz sand, barite ore, or galenite with the specific weights 2.6, 4.3, and 6.6, respectively. The liquid phase has been represented by solutions of sugar in glycerine, colophony, transformer oil, and coal tar. The following empirical relation between the temperature and viscosity has been obtained: $\mu = at^{-n}$. The slags from Lenger, Yaysan, Kel'temashat, and

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SOV/112-59-4-6537

Temperature Characteristics of the Ashes of Some Kazakhstan Coals

Karaganda brown coals have been studied; these slags have a relatively low fusion point. The empirical relation between the temperature characteristic and viscosity for these slags in dimensionless quantities is $\bar{\mu} = \Theta^{-n}$, where $\bar{\mu}$ is the ratio of viscosity at any temperature to the viscosity at the point t_2, Θ is the ratio of the temperature at which the viscosity is sought to the temperature at the point t_2, n is a constant (70 for the above experiments). The following conclusions are drawn:

In studying viscosity characteristics of high-temperature complex systems, a similarity between them and the low-temperature heterogeneous systems can be used. Slags of some Kazakhstan power-producing coals at the temperature t_2 have the same viscosity, about 100,000 poise, and at the point t_3, about 33,000 poise. The viscosity-temperature relation of the above slags and that of cool systems can be expressed, in dimensionless coordinates, by the same curve; this fact points out that there is an approximate similarity in the effect of temperature on viscosity.

S.M.Sh.

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8(6) SOV/112-59-4-6544

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 20 (USSR)

AUTHOR: Favorskiy, V. V.

TITLE: Some Burning Characteristics of High-Ash Coal (a Particle and a Bed)

PERIODICAL: V sb.: Issled fiz. osnov rabochego protsessa topok i pechey. Alma-Ata, AS Kazakhskaya SSR, 1957, pp 345-360

ABSTRACT: In an experimental study of the influence of the ash content upon fuel combustion, under conditions most approximating real furnace conditions, the problem of burning individual ash-ballasted coal particles has been examined; the effect of the ash content on the fuel-bed combustion, with variable forcing of the process, has been examined. Some considerations are set forth about methods of controlling the inhibiting effect of ash and slag on the combustion process. The fuel ashes under temperature conditions precluding slag formation decrease the rate of combustion of both the individual particle and the fuel bed; the inhibiting effect due to ash increases with the ash content and depends

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Some Burning Characteristics of High-Ash Coal (a Particle and a Bed)

on the structure of the ash coat. The rate of combustion with no slag formation is mainly determined by the internal diffusion resistance of the ash layer which exceeds by several times the resistance of the external (gas) diffusion. Under temperature conditions that produce fluid slag, the slag drains off the particle surface, which can result in a higher rate of combustion in the case of an individual particle; or it can result in slag accumulation and inhibition of the rate of combustion up to its stopping in the case of a fuel bed. Forcing the combustion of high-ash coal in conventional fuel-bed-type furnaces by increasing the forced draft is possible only up to the point when heavy slag formation takes place. Increasing the forced draft and, consequently, the bed temperature further results in slag accumulation. Stirring the bed (poking) allays the slag inhibiting effect but results in heavy fuel loss. In order to use unlimited forcing of combustion, the bed should be maintained at such temperatures that all slag could flow off as soon as it is formed.

S.M.Sh.

Card 2/2

8(6) SOV/112-59-4-6550

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 22 (USSR)

AUTHOR: Favorskiy, V. V.

TITLE: Some Results of Studying the Working Process in a Furnace With a Poking Rack

PERIODICAL: V sb.: Issled. fiz. osnov rabochego protsessa topok i pechey. Alma-Ata, AS Kazakhskaya SSR, 1957, pp 457-467

ABSTRACT: Study and development of a method for mechanical burning of local low-grade fuel in small power plants that use a poking-rack furnace are reported; the information is based on 10 years' experience of the Power-Engineering Institute, AS Kazakhskaya SSR. Results of studying the kinematics of the fuel bed in such a furnace are set forth; particulars of fuel-bed flame as well as some points concerning the mode of operation and design of the furnace are considered. Bibliography: 12 items.

S.M.Sh.

Card 1/1

FAVORSKIY, V.V.; FATEYEVA, Ye.T.

Problem of the so-called "internal" combustion of hard fuel. Izv. AN Kazakh. SSR. Ser.energ. no.1:81-86 '59. (MIRA 12:11)
(Combustion)